Background feature

PRINTABLE VERSION

World Meteorological Day

Each year, on 23 March, the international body that unites all the meteorological services around the world, the World Meteorological Organization, a UN agency, commemorates its formation with World Met. Day. This year the theme being highlighted is 'Reducing vulnerability to weather and climate extremes'. Every year, natural disasters like the floods in Mozambique and the earthquake in Gujarat, result in thousands of deaths and cost the world economy billions. But there are measures being taken to help predict and deal with the aftermath of these disasters.

The prediction of disasters contains a significant weather forecasting element, even when the event itself is not directly weather-related and, as a leading international meteorological agency, the Met Office can provide a proactive service. There is a requirement for reliable weather, and other related information, prior to a disaster, once one has started, and in the aftermath.

Disaster preparedness and mitigation relies on sound planning, awareness, and the availability of reliable, understandable, accurate information. The Met Office is a round-the-clock global operation and already collects, processes, analyses and distributes more than 10 million pieces of data and information on a daily basis. These can all be used to help detect and forecast severe weather, where there is a risk of subsequent disaster, and help the relevant authorities implement reactive procedures almost immediately.

In Britain, the Met Office has helped reduce the impact of severe weather with its National Severe Weather Warning Service. This service disseminates timely warnings to local authorities and emergency services of impending heavy rain, snow, fog and strong winds. The Met Office also works closely with the Environment Agency to help them forecast flooding.

After many years of studying natural disasters, the Met Office has developed a severe weather impacts modelling capability for the UK. This could be extended to measure the human and economic losses for various hazards elsewhere.

The Met Office already works with other agencies and organisations to help them develop their disaster planning activities. Vital information is provided to the UK's Department for International Development (DFID), which assists countries hit by disasters and those who are in need of humanitarian aid as well as regularly updating DFID on the likelihood of hurricanes in the Caribbean. Following the floods in Mozambique, the Met Office informed aid agencies that more heavy rain was expected, thus enabling them to delay delivery of the aid until the threat had passed.

Other countries are being helped to reduce their own vulnerability to severe weather, by upgrading their own facilities. These include a Met Office system in Thailand which provides better predictions of rainfall and flooding, enabling them to manage their water supplies better. In Poland a rainfall forecast system - again for better flood warnings - has been implemented. It doesn't just stop at developing countries, other national meteorological services also collaborate to improve their understanding of meteorology and its applications. The Met Office has developed a forecaster information system, which is currently being used in Australia to provide better forecasts of severe weather, and hence warnings of bush fires, like those that recently threatened Sydney.

But providing weather forecasts is only part of the jigsaw, predicting climate change is also a vital component. The Met Office's Hadley Centre is the UK Government's centre for research into the science and prediction of climate change.

Over the last 12 years the centre has developed a series of world-class climate prediction models, which are used in a variety of assessments of the vulnerability to climate change across the world. They now include regional climate models, which provide realistic simulations of climate extremes and are being used to look at the impacts of climate change over Europe, India, southern Africa and China. A PC version of the regional climate model will soon be supplied to developing countries, in conjunction with the UN and DFID. This will enable those countries to assess their vulnerability to climate change, including changes in climate extremes.

Experts at the Hadley Centre are also currently working on a global decadal prediction model, which should enable predictions to be made of, for example, enhanced likelihood of droughts or floods for certain regions over a 10-year period.

The Met Office is building on current expertise in health forecasting, water resources and weather-related natural disasters. It is already involved with a European initiative called GMES (Global Monitoring for Environment and Security) which is aiming to tailor a combination of remotely-sensed satellite and ground-based data to deliver benefits in the natural disasters field. It is also co-operating with other European counties on the forecasting, dissemination and display of severe weather warnings.

However, further progress requires substantial investment. As a trading fund, the Met Office has been able to invest some of its own 'profits' towards achieving these aims. And because Government departments stand to be the main beneficiaries from these activities, the Met Office is actively seeking development funding from the Government. However, charities, non-governmental organisations involved in humanitarian work and, in line with the ethos of the WMO, other national meteorological services have been very supportive of the proposed work.

After a natural disaster has occurred the Met Office still plays a vital role. Staff and technology can be quickly deployed to provide communications back-up and regain an information flow where the necessary infrastructure has been damaged or destroyed. It also has the capability to design and build high-quality web sites, which can deliver tailored or generic information to assist aid personnel in the field.

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